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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,530	09/29/2000	Michael F. Angelo	1662-28400 (P99-2550)	1588

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EXAMINER
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ART UNIT	PAPER NUMBER
2625	5

DATE MAILED: 10/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

<table>
<tr><td rowspan="2">Office Action Summary</td><td colspan="2">Application No.</td><td colspan="2">Applicant(s)</td></tr>
<tr><td colspan="2">09/675,530</td><td colspan="2">ANGELO ET AL.</td></tr>
<tr><td></td><td colspan="2">Examiner
Aaron W Carter</td><td>Art Unit
2625</td><td></td></tr>
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 September 2000</u> .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-27</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-27</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 September 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
patent by another filed in the United States before the invention by the applicant for patent, except that an
international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
subsection of an application filed in the United States only if the international application designated the United
States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 6, 8-12 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by

USPN 5,987,156 to Ackland et al. ("Ackland").

As to claim 1, Ackland discloses a computer system comprising:

A biometric device configured to transmit images (column 5, lines 4-10);

An interface coupled to the device to receive the transmitted images (column 5,

lines 4-10), wherein the interface is configured to determine if the transmitted images include

bands (column 4, lines 49-55, wherein derivation in pixel intensities, which causes bands as seen

in fig 3, are determined).

As to claim 4, Ackland discloses the computer system of claim 1, wherein the bands are

attributable to electrical changes (column 4, lines 3-6).

As to claim 6, Ackland discloses the computer system of claim 1, wherein the interface is configured to process the images to determine minutia information (column 2, lines 30-44, wherein ridges and valleys of a fingerprint corresponds to minutia information).

As to claim 8, Ackland discloses the computer system of claim 1, wherein the biometric device is a fingerprint scanner configured to transmit images of fingerprints (column 5, lines 4-10).

As to claim 9, Ackland discloses the computer system of claim 1, wherein the interface determines if one or more of the transmitted images include at least one straight line having at least a predetermined width across the image (column 3, lines 40-43 wherein the sensing elements form a column which corresponds to a straight line and they each have the same predetermined width and in column 4, lines 49-55, it is determined if the straight lines are variant from the other straight lines in the image, see also figure 3).

As to claim 10, Ackland discloses the computer system of claim 1, wherein the interface processes a plurality of rows to determine a corresponding plurality of grayscale value histograms (Fig. 5).

As to claim 11, Ackland discloses the computer system of claim 10, wherein the interface processes the plurality of grayscale value histograms to determine a corresponding plurality of modes for the grayscale value histograms (Fig. 5, wherein modes corresponds to Vj and Rj).

As to claim 12, Ackland discloses the computer system of claim 11, wherein the interface

determines if the plurality of modes indicate the existence of bands in the images by determining

if the modes exhibit variation greater than a predetermined amount (column 4, lines 32-36).

As to claim 25, Ackland discloses a fingerprint verification system that comprises:

A capture means for capturing a fingerprint image (column 5, lines 4-10); and

A processing means for determining if the fingerprint image includes bands (column 4,

lines 49-55, wherein derivation in pixel intensities, which causes bands as seen in fig 3, are

determined) attributable to condition changes during the capturing of the fingerprint image

(column 4, lines 3-6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 7, 13-16, 18-20, 22, 23 and 27 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ackland in view of Bolle et al. ("Bolle").

As to claim 2, Ackland discloses the computer system of claim 1, but neglects to explicitly disclose that when the interface is configured to report failure if the interface determines that the transmitted images include bands. However, Bolle discloses a system and method for determining the quality of fingerprint images. Bolle teaches that if an acquired fingerprint image is determined to be poor in quality it is to be rejected which corresponds to reporting failure (column 3, lines 15-17). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to reject images determined to have poor quality, such as those containing bands, in order to improve the effectiveness of match-based fingerprint systems (column 2, lines 36-37).

As to claim 7, Ackland discloses the computer system of claim 6, however the combination of Ackland and Bolle discloses wherein the interface is configured to convert the minutia information into a template only if the interface does not determine that the transmitted images include bands (Bolle, column 2, lines 56-60, column 3, lines 15-17 and Ackland, column 4, lines 49-55).

As to claim 13, Ackland discloses the computer system of claim 1, while Bolle discloses wherein the interface connects to an expansion slot (Fig. 7, element 780), and wherein the computer system further comprises:

A system memory configured to store software (column 4, lines 65-67).

A processor coupled to the system memory and configured to execute the software (column 4, lines 58-59), wherein the processor is further coupled to the interface (Fig. 7),

wherein the software configures the processor to initiate operation of the interface and biometric

device (column 5, lines 2-11).

As to claim 14, the combination of Ackland and Bolle disclose the computer system of

claim 13, Bolle further discloses wherein the processor is configured to receive a template from

the interface, and wherein the processor is configured to compare the template to a stored

template (Fig. 7 and column 1, lines 49-53).

As to claim 15, the combination of Ackland and Bolle discloses the computer system of

claim 13, Bolle further discloses wherein the computer system further comprises:

A network interface coupled to a network login server, wherein the network login server

is configured to receive a template from the interface, and wherein the network login server is

configured to compare the template to a stored template (Fig. 7, element 786 and column 5, lines

23-28).

As to claim 16, please refer to the rejection of claims 1 and 2 above.

As to claim 18, the combination of Ackland and Bolle disclose the method of claim 16,

Bolle further discloses wherein the determining is one of plurality of security tests, and wherein

the method further comprises:

Creating a fingerprint template if the image passes the plurality of security tests (Fig. 8B,

elements 8804, 8807, 8809 and 8812).

As to claim 19, the combination of Ackland and Bolle disclose the method of claim 18,

Bolle further discloses wherein the creating includes:

Extracting minutia information from the fingerprint image (column 1, lines 45-47); and

Converting the minutia information into the fingerprint template (column 1, lines 50-53).

As to claim 20, the combination of Ackland and Bolle disclose the method of claim 19,

Bolle further discloses wherein the plurality of security tests includes determining if minutia

information from one fingerprint image matches minutia information from another fingerprint

image (column 1, lines 50-53).

As to claim 22, please refer to the rejection of claim 9 above.

As to claim 23, please refer to the rejection of claims 10-12 above.

As to claim 27, please refer to the rejection of claim 2 above.

Claims 1, 3, 16, 17, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Bolle (already of record) in view of USPN 5,881,182 to Fiete et al. ("Fiete").

As to claim 1, Bolle discloses a computer system comprising:

A biometric device configured to transmit images (Fig. 7, element 780);

An interface coupled to the device to receive the transmitted images (Fig. 7, element 710), wherein the interface is configured to determine if the transmitted images include poor quality (column 3, lines 15-17).

While Bolle determines whether or not a transmitted image is poor in quality, he neglects to explicitly disclose that the poor quality is the result of bands. However, Fiete discloses a process for detecting streaks or bands in an image (column 2, lines 35-41). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made determine if an image includes bands, as taught by Fiete, which reduce the aesthetic quality of the image and severely degrades the performance of a pattern recognition and feature extraction algorithms (column 1, lines 60-64) such as those performed biometric device disclosed by Bolle.

As to claim 3, the combination of Bolle and Fiete disclose the computer system of claim 1, Fiete further discloses wherein the bands are attributable to illumination changes (column 1, lines 47-51).

As to claims 16, the combination of Bolle and Fiete disclose a fingerprint verification method that comprises:

Capturing a fingerprint image (Bolle, Fig. 7, element 780); and

Determining if the fingerprint image includes bands (Fiete, column 2, lines 35-41), and if so, aborting creation of a fingerprint template (Bolle, column 3, lines 15-17).

As to claim 17, please refer to rejection made for claim 3 above.

As to claims 25 and 26, please refer to rejection made for claims 16 and 17 above.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bolle and Fiete as

applied to claim 1 above, and further in view of USPN 4,600,675 to Iwasa et al ("Iwasa").

As to claim 5, the combination of Bolle and Fiete disclose the computer system of claim

1, but neglect to explicitly disclose the bands are attributable to induction across the biometric

device. However, Iwasa teaches us that it is known in the art that a magnetic field can cause

bands or streaks in an image. Therefore it would have been obvious to one of ordinary skill in

the art at the time the invention was made to determine if an image contains bands attributable to

induction across the biometric device, since it is known in the art that streaks can be caused in

this nature and reduce the quality of the image (column 3, lines 21-22).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bolle and Fiete as

applied to claim 16 above, and further in view of USPN 6,292,576 to Brownlee et al.

("Brownlee").

As to claim 21, the combination of Bolle and Fiete disclose the method of claim 16, but

neglect to disclose illuminating a window from a scanning side and scanning light reflected back

through the window in raster fashion. However, Brownlee discloses disclose illuminating a

window from a scanning side and scanning light reflected back through the window in raster

fashion (Fig. 9 and column 7, lines 20-25). Therefore it would have been obvious to one of

ordinary skill in the art at the time of the invention to use the illumination and scanning method

as taught by Brownlee, which aids in determining whether or not the fingerprint came for a

living human being (column 1, lines 47-50).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ackland and

Bolle as applied to claim 18 above, and further in view of Brownlee (already of record).

As to claim 24, the combination of Ackland and Bolle disclose the method of claim 18,

wherein the plurality of tests includes extracting minutia information from a plurality of

fingerprint images (Bolle, column 1, lines 50-53), but neglects to explicitly disclose that

comparing the minutia information of the plurality of images to determine if at least a minimum

amount of variation exists, and if not, aborting the creation of the fingerprint match template.

However, Brownlee discloses comparing the minutia information of the plurality of images to

determine if at least a minimum amount of variation exists, and if not, aborting the creation of

the fingerprint match template (Fig. 5). Therefore it would have been to one of ordinary skill in

the art at the time of the invention to determine if at least a minimum amount of variation exists

as taught by Brownlee, this providing a method of determining whether the fingerprint is from a

living human being (Fig. 5, element 513).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

USPN 5,978,495 to Thomopoulos et al. discloses a method of determining whether a

fingerprint is from a human being.

USPN 4,811,414 to Fishbine et al. discloses a method of detecting poor quality in a finger print image.

USPN 5,065,444 to Garber discloses a method of check for bands in an image.

USPN 4,827,527 to Morita et al. discloses a method of detecting a minimum variation in a plurality fingerprint images to determine if the fingerprint is from a human.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W. Carter whose telephone number is 703.306.4060. The examiner can normally be reached by telephone between 8am - 4:30pm (Mon. – Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703.308.5246. The fax phone number for the organization where the application or proceeding is assigned is 703.872.9306 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.306.0377.

Aaron W. Carter
Examiner
Art Unit 2625

awc
September 17, 2003

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